

AMENDMENTS TO THE CLAIMS

1. (currently amended) A process of preparing an unsaturated fatty acid, which comprises introducing, into an organism, at least one isolated nucleic acid sequence encoding a polypeptide having $\Delta 6$ -desaturase activity, selected from the group consisting of:
 - a) A nucleic acid sequence having the sequence shown in SEQ ID NO: 1,
 - b) nucleic acid sequences which, as a result of the degeneracy of the genetic code, are derived from the sequence shown in SEQ ID NO: 1, and
 - c) a derivative of the nucleic acid sequence shown in SEQ ID NO: 1 which encodes the polypeptide with the amino acid sequence shown in SEQ ID NO: 2 ~~and has~~ or a polypeptide having at least 95% homology at the amino acid level without substantially reducing the $\Delta 6$ -desaturase activity of the polypeptide,
and culturing the organism, wherein the cultured organism contains at least 1 mol% of unsaturated fatty acid based on the total fatty acid content in the organism.
2. (previously presented) The process as claimed in claim 1, wherein the isolated nucleic acid sequence is derived from a plant or an alga.
3. (previously presented) The process as claimed in claim 1, wherein the isolated nucleic acid sequence is derived from *Physcomitrella patens*.
4. (currently amended) The process as claimed in claim 1, wherein the organism is selected from the group consisting of a bacterium, a fungus, a ciliate, an alga, a cyanobacterium, ~~an~~ animal cells and a plant.
5. (previously presented) The process as claimed in claim 1, wherein the organism is a plant or an alga.

6. (previously presented) The process as claimed in claim 1, wherein the organism is an oil crop.
7. (previously presented) The process as claimed in claim 1, wherein the cultured organism contains at least 5% by weight of the unsaturated fatty acid based on the total fatty acid content in the organism.
8. (previously presented) The process as claimed in claim 1, wherein the unsaturated fatty acid is isolated from the organism.
9. (currently amended) A transgenic organism selected from the group consisting of a plant, a fungus, a ciliate, an alga, a bacterium, and a cyanobacterium comprising at least one isolated nucleic acid sequence encoding a polypeptide with $\Delta 6$ -desaturase activity, selected from the group consisting of:
 - a) a nucleic acid sequence having the sequence shown in SEQ ID NO: 1,
 - b) a nucleic acid sequence which, as a result of the degeneracy of the genetic code, is derived from the sequence shown in SEQ ID NO: 1, and
 - c) a derivative of the nucleic acid sequence shown in SEQ ID NO: 1 which encodes the polypeptide with the amino acid sequence shown in SEQ ID NO: 2 ~~and has or a polypeptide having~~ at least 85% homology at the amino acid level without substantially reducing the $\Delta 6$ -desaturase activity of the polypeptide.
10. (previously presented) A transgenic organism as claimed in claim 9, wherein the organism is a plant or an alga.
11. (withdrawn) An oil, lipid or fatty acid or fraction thereof, prepared by the process as claimed in claim 1.
12. (withdrawn) The use of the oil, lipid or fatty acid composition as claimed in claim

11 or of a transgenic organism in feed, foodstuffs, cosmetics or pharmaceuticals.

13. (previously presented) An isolated nucleic acid comprising SEQ ID NO: 1.

14. (previously presented) The isolated nucleic acid of claim 13, which is at least 90% homologous with the complement of SEQ ID NO: 1 and has encodes a polypeptide having not less than 30% of the enzymatic activity of SEQ ID NO: 2.

15. (previously presented) The isolated nucleic acid of claim 13, which is at least 90% homologous with the complement of SEQ ID NO: 1 and has encodes a polypeptide having not less than 100% of the enzymatic activity of SEQ ID NO: 2.

16.-17. (canceled)